

AMENDMENTS TO THE CLAIMS

*This listing will replace all prior versions, and listings, of claims in the application:*

1. (Currently amended) An i[[I]]intramedullary nail suitable for insertion in a fractured elongate bone, comprising:  
a stem extending between a proximal end and a distal end,  
~~the nail comprising~~ a plurality of shape-memory elements realised with which are made of  
at least a shape-memory material, and  
a plurality of seats formed in the stem for housing said shape-memory elements, ~~and in that~~  
wherein said shape-memory elements are suitable to take assume a first configuration of  
rest in which said shape-memory elements are arranged inside shape wherein they are retractably  
housed in the respective seats and a second configuration of use in which said shape-memory  
elements project from the nail, shape wherein they project from the respective seats,  
wherein said shape-memory elements are structurally independent from the stem, and  
wherein the stem comprises at least two half-cylinders that are axially united along the length.
2. (Currently amended) [[I]]The intramedullary nail according to claim 1, wherein the seats of the stem are ~~made~~ consist of a plurality of transversal slots, or elongate holes, which extends ~~passing~~ from one side of the stem to the other side of the stem.
3. (Currently amended) [[I]]The intramedullary nail according to claim 1, wherein it ~~the nail~~ comprises inserts, ~~structurally independent from the stem,~~ and comprising at least one of said shape-memory elements, ~~each of said inserts being suitable for insertion in a corresponding seat.~~
4. (Currently amended) [[I]]The intramedullary nail according to claim 3, wherein each insert is inserted by pressure in the respective seat.

U.S. Patent Appln. No. 10/599,502  
 Amendment  
 Reply to Office Action dated March 7, 2011

Docket No. 7202-124 (194359)

5. (Currently amended) ~~[[I]]~~The intramedullary nail according to claim 3, wherein each of said inserts comprises two shape-memory elements, which are connected by means of a central connection element.

6. (Currently amended) ~~[[I]]~~The intramedullary nail according to claim 5, wherein each insert has a substantially fork-like shape.

7. (Currently amended) ~~[[I]]~~The intramedullary nail according to claim ~~[[2]]~~6, wherein each fork-like insert is suitable to be housed in a corresponding transversal slot, so in such a manner that the two elements ~~are arranged on side~~ project from opposite to sides of the stem.

8. (Currently amended) ~~[[I]]~~The intramedullary nail according to claim 3, wherein the inserts are flanked in succession along the length of the stem.

9. (Currently amended) ~~[[I]]~~The intramedullary nail according to claim 3, wherein the inserts are distributed on the side surface of the stem in correspondence with the proximal end and the distal end.

10. (Currently amended) ~~[[I]]~~The intramedullary nail according to claim 3, wherein the inserts are offset with respect to each other ~~of by~~ by 90° sexagesimal.

11. (Currently amended) ~~[[I]]~~The intramedullary nail according to claim 5, wherein the two shape-memory elements of each insert comprise two opposite tabs~~[[,]]~~ having a flexural memory.

12. (Currently amended) ~~[[I]]~~The intramedullary nail according to claim 3, wherein the each insert~~[[s]]~~ is of the multilaminar, having type, i.e. it is realised by means of a plurality of overlapped foils of shape-memory material.

13. (Currently amended) ~~[[I]]~~The intramedullary nail according to claim 5, wherein  
the two shape-memory elements of the insert are connected by means of a cylindrical sleeve.

14. (Currently amended) ~~[[I]]~~The intramedullary nail according to claim 13, wherein  
~~on said cylindrical sleeve~~ two opposite grooves are provided on said cylindrical sleeve, said two  
opposite grooves being offset ~~by~~ substantially of a right angle  $90^\circ$  with respect to said two  
shape-memory elements ~~and suitable to house at least partially the elements of a flanked~~  
~~cylindrical sleeve.~~

15. (Currently amended) ~~[[I]]~~The intramedullary nail according to claim 11, wherein  
the tabs ~~on the surface facing~~ face outwards ~~from~~ the stem and have a substantially sawtooth-like  
profile.

16. (Currently amended) ~~[[I]]~~An intramedullary nail suitable for insertion in a fractured  
elongate bone, comprising:

a stem extending between a proximal end and a distal end,

a plurality of shape-memory elements ~~realised with at least a~~ which at least include a  
shape-memory material, and

a plurality of seats formed in the stem for housing said shape-memory elements,  
wherein said shape-memory elements are suitable to take assume a first shape ~~wherein they~~  
rest configuration in which said shape-memory elements are retractably housed in arranged inside  
the respective seats and a second use configuration in which said shape-memory elements ~~shape~~  
~~wherein they~~ project from the respective seats,

wherein the nail includes inserts, structurally independent from the stem and comprising at  
least one of said shape-memory elements, each of said inserts being suitable ~~for insertion~~ to be  
arranged in a corresponding seat, and

wherein each insert ~~includes~~ is made of a plurality of overlapped metallic foils ~~made by~~  
stacked onto each other and consisting of shape-memory material.

17. (Currently amended) ~~[[I]]~~The intramedullary nail according to claim 16, wherein each insert has a substantially fork-like shape~~[[d]]~~.

18. (Currently amended) ~~[[I]]~~The intramedullary nail according to claim 17, wherein for ensuring a stable assembly of the metallic foils, ~~the insert is provided with~~ metallic foils are held together by a pair of blocking pins inserted transversally to the metallic foils.

19. (Currently amended) ~~[[II]]~~An intramedullary nail suitable for insertion in a fractured elongate bone, comprising:  
a stem extending between a proximal end and a distal end,  
a plurality of shape-memory elements realised with which are made of at least a shape-memory material, and  
a plurality of seats formed in the stem for housing said shape-memory elements, ~~wherein~~ said shape-memory elements are suitable to take assume a first shape wherein they configuration of rest in which said shape-memory elements are retractably housed in arranged inside the respective seats and a second shape wherein they configuration of use in which said shape-memory elements project from the respective seats,  
wherein said shape-memory elements are structurally independent from the stem,  
wherein it the nail comprises a tubular jacket for sheathing the stem, the tubular jacket having a side wall which sheathes the stem and has the function of retaining the shape-memory elements in the first shape, i.e. in the close retractable position in the seats, when the nail is inserted in the bone configuration of rest, the jacket comprising a side wall and a plurality of transversal elongate holes made on the side wall, wherein the jacket and the stem can be shifted with respect to each other along a longitudinal axis of the stem from a first operative position in which the side wall of the jacket retains the shape-memory elements in the first configuration of rest, and a second operative position in which the transversal holes of the jacket are aligned with the seats of the stem, so as to allow the arrangement of the shape-memory elements projecting from the respective seats,  
and

wherein a control screw, suitable to be rigidly connected to a head portion of the stem, causes an axial shift of the stem with respect to the jacket, when the control screw is rotated around its own axis.

20-23. (Cancelled)

24. (Currently amended) ~~[[I]]~~<sup>84</sup>The intramedullary nail according to claim [[23]]19, wherein it the nail comprises an internally hollow tube suitable to be rigidly connected to a head portion of the jacket and ~~wherein in which~~ the control screw is ~~blacklash-like~~ housed within the hollow tube with clearance.

25-37. (Cancelled)

38. (New) The intramedullary nail according to <sup>84</sup>claim 24, wherein the internally hollow tube is inserted in a bearing sleeve, said bearing sleeve being configured to maintain the jacket axially firm during the shift of the stem.

39. (New) The intramedullary nail according to claim 38, wherein a cylindrical body is welded on the head portion of the jacket, said cylindrical body having an internal threading onto which a corresponding threading of the internally hollow tube is screwed, and wherein the cylindrical body is provided with a pair of recesses configured to receive corresponding teeth of the bearing sleeve.

40. (New) The intramedullary nail according to claim 19, wherein the head portion of the stem is provided with a threaded portion suitable to engage a corresponding threaded portion of the control screw.